

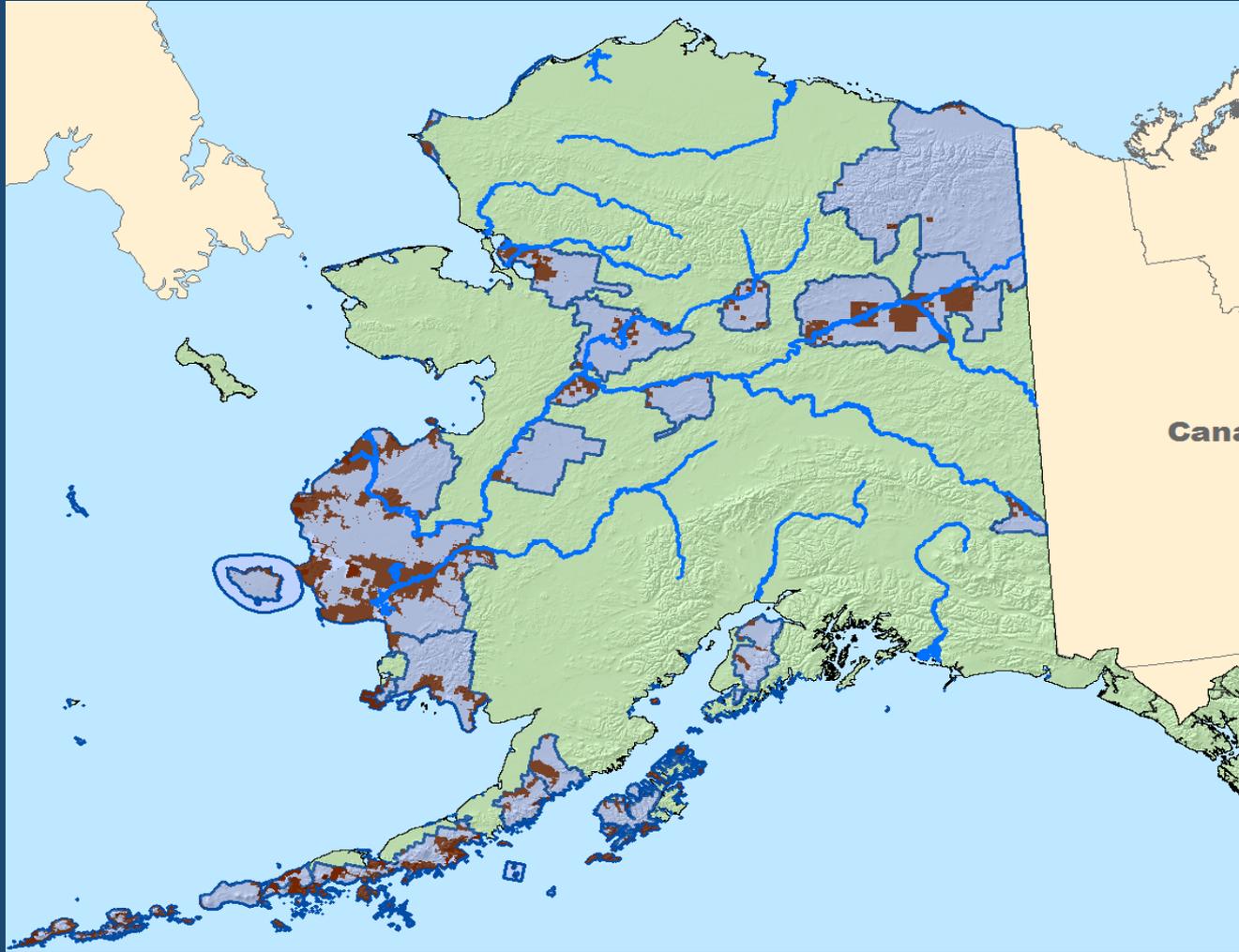
Alaska – U.S. Fish & Wildlife Service

National Wildlife Refuge System  
Fisheries & Ecological Services  
Marine Mammals Management  
Migratory Bird Management  
Science Applications - LCCs

# Some Regional Species Priorities

- Threatened & Endangered Species – Polar Bears, Steller's Eider, Spectacled Eider, Short-tailed Albatross, etc.
- Other sensitive species – Kittlitz's murrelet, Yellow-billed loon, Pacific Walrus, etc.
- Other priority species – Lesser Scaup, Pacific Brant, Emperor Goose, Porcupine Caribou Herd, Yukon Chinook Salmon, etc.

# Alaska NWRs



Purple = Refuges Brown = Private land

# On-going projects

- Each program within the USFWS has projects targeted at species within the study area.
- Refuges –
  - Several have some fire monitoring efforts looking at post-fire vegetation response.
  - Several have some permafrost research.
  - Most have long term monitoring of species.
- Suggestion – use the LCCs to provide information for on-going research

# Areas of Interest

- Climate information – permafrost, coastal erosion, lake drying, fire frequency, winter ice and rain, ice jam flooding events
- Human response to landscape changes due to climate. Such as Native Alaskan culture and the ability to continue way of life. Travel, hunting, gathering, expanding or changing species ranges (moose, beaver) are of interest.
- Invasive species – What new species will become the next threat?

# Top Alaska fire research needs identified by the interagency fire community and land managers

- What are the historical departures from current fire regimes?
- What changes in fire size, return interval, intensity, severity and seasonality can we expect under a changing climate? How will changes in these elements differ between vegetation types?
- What are historic fire regimes for Alaska tundra ecotypes and what are predicted responses to climate change?
- What are potential feedback mechanisms which could alter the probability of future fires?
- How will possible changes in future fire regimes impact management strategies and suppression tactics?

\*\*The full list can be found at:

<https://www.frames.gov/partner-sites/afsc/partner-groups/frdac/research-needs-list/>

# Weather

- What are the challenges with warmer winters and the affects on species and people?
- Winter precipitation changing from snow to rain or ice. What effect is this having on caribou and other species?
- How has weather impacted peoples ability to live off the land?
- Changing snow and break up dynamics.
- Coastal erosion and salt water intrusion into wetlands.

# Permafrost, Glaciers, Sea Ice

- What are the changes to wetlands and lakes? Are we gaining or losing wetlands?
- Models for permafrost may need fine scale resolution (< 5 meters) to help managers make decisions. What is the rate of change?
- Receding glaciers and sea ice present many challenges for humans and wildlife. What can we expect for the future?
- What are the ground and surface water interactions?

# Outcome

- Need protocols for conducting further monitoring
- Tools needed – models, geo-spatial data (layers), applications
- Databases for storing future information
- Communication and coordination at the larger landscape – Landscape Conservation Cooperatives (LCCs)

# Outcome – Spatial Data

## Scalability -

- Resource managers often need information at finer scales than remote sensing data typically provides.

## Consider:

- information about habitats commonly occurring at <30 meter pixels
- approaches to infer projected changes of these habitats
- approaches to link changes in habitats in one region of AK to other regions (e.g. is the habitat in Refuge X changing more rapidly than the same habitat in other places in AK?)

